

### **REMARKS**

This Application has been carefully reviewed in light of the Office Action mailed July 12, 2006 ("Office Action"). In the Office Action, Claims 1-18 are pending and rejected. Applicants have amended Claims 9 and 14 and submit that no new matter is added by these amendments. As described below, Applicants believe all claims to be allowable over the cited references. Therefore, Applicants respectfully request reconsideration and full allowance of all pending claims.

### **Claim Objections**

The Examiner objects to Claim 9 due to insufficient antecedent basis for the limitation "the accumulator." Applicants have amended Claim 9 to address the antecedent basis issues identified by the Examiner. Accordingly, Applicants respectfully request that the objection to Claim 9 be withdrawn.

### **Section 103 Rejections**

The Examiner rejects Claims 1-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,805,725 issued to Paulsson ("*Paulsson*") in view of U.S. Patent No. 5,119,344 issued to Innes ("*Innes*") in view of U.S. Patent No. 5,018,598 issued to Sodich ("*Sodich*"). For the reasons discussed below, Applicants respectfully request reconsideration and allowance of Claims 1-18.

#### **A. The Claims are Allowable over the Proposed *Paulsson-Innes-Sodich* Combination**

Independent Claim 1, of the present Application, recites:

A seismic energy source for use while drilling a wellbore, comprising:  
a drive shaft adapted to be coupled to a drill string;  
a housing rotatably supported outside the drive shaft;  
at least one contact member on an exterior of the housing  
and selectively urged into contact with a wall of a wellbore  
surrounding the housing; and

means for selectively controlling a laterally outward force applied to the at least one contact member, the means for selectively controlling adapted to control the laterally outward force so as to induce a seismic signal in the well bore detectable at the Earth's surface.

Because the proposed *Paulsson-Innes-Sodich* combination does not disclose, either expressly or inherently, each and every element of Claim 1, Applicants respectfully submit that Claim 1 is allowable over the proposed combination.

For example, Applicants respectfully submit that the proposed *Paulsson-Innes-Sodich* combination does not disclose, teach, or suggest “a housing rotatably supported outside the drive shaft,” as recited in Claim 1. In the Office Action, the Examiner acknowledges that “*Paulsson* fails to teach . . . a housing rotatably supported outside the drive shaft” and instead relies upon *Innes* for disclosure of the recited features. (Office Action, page 2). Specifically, the Examiner identifies reference numeral 5 of Figure 1 and reference numeral 14 discussed at Col. 4, line 66 through Column 5, line 26 as being analogous to Applicants’ recited drive shaft and housing, respectively. (Office Action, page 3). *Innes* actually discloses, however, “a downhole tool for generating pressure pulses in a drilling fluid.” (Column 2, lines 43-45). The downhole tool comprises “an elongate body for positioning in a drill collar of a drill string.” (Column 2, lines 45-46). More specifically, the downhole tool “generally indicated by reference numeral 40 [of Figure 1] fits within a drill collar 41 of a drill string.” (Column 3, lines 32-34). The Applicants respectfully point out that a drill collar forms part of the rotating portion of the drill string and would be coupled to a drive shaft as such is recited in the Applicants’ claim 1. The downhole tool 40 disclosed in *Innes* is disposed inside the rotating part of the drill string. Thus, downhole tool 40 is merely a tool that is positioned within the interior of the drill collar. Although the downhole tool itself includes a “hollow rotatable shaft 5” and a housing 14 “supported coaxially around the shaft 5” (Figure 1; Column 3, lines 41-43 and 45-46), housing 14 as disclosed in *Innes* is not “rotatably supported outside the drive shaft,” as recited in Claim 1. Accordingly, the proposed *Paulsson-Innes-Sodich*

combination does not disclose, teach, or suggest each and every element recited in Claim 1.

As another example of the deficiencies of the *Paulsson-Innes-Sodich* combination, Applicants respectfully submit that the proposed combination does not disclose, teach, or suggest “means for selectively controlling a laterally outward force applied . . . so as to induce a seismic signal in the well bore detectable at the Earth’s surface,” as recited in Claim 1. In the Office Action, the Examiner specifically relies upon *Paulsson* for disclosure of the recited features and operations. *Paulsson* discloses, however, that the downhole seismic source 60 “includes motion sensing devices 79 which are secured to the well bore wall 500 by expandable boot 78.” (Column 7, lines 34-36). “Suitable sensing devices 79 include geophones or accelerometers designed to detect vibration of the borehole wall 500.” (Column 7, lines 36-38). “The sensing devices are . . . connected to the device 60 by electric wires 76 and hose 76a for inflating the boot 78.” (Column 7, lines 38-42). In operation, an electronics package “receives signals from the motion sensing devices 79 and 50 and transmits them to the surface.” (Column 7, lines 54-46). Because the sensors are placed within the well bore, *Paulson* and, thus, the proposed *Paulsson-Innes-Sodich* combination does not disclose, teach, or suggest “means for selectively controlling a laterally outward force applied . . . so as to induce a seismic signal in the well bore detectable at the Earth’s surface,” as recited in Claim 1.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claim 1, together with Claims 2-9 that depend on Claim 1.

The Examiner also relies upon the *Paulsson-Innes-Sodich* combination to reject independent Claims 10 and 14. Applicants respectfully submit, however, that the proposed references do not disclose, teach, or suggest each and every element of Applicants’ independent Claims 10 and 14. For example, Claim 10 recites “selectively varying a laterally outward force on a contact member engaged with a wall of a wellbore, the contact member disposed on a housing rotatably supported on a driveshaft coupled to a

drill string, the selectively varying adapted to cause generation of a seismic signal detectable at the Earth's surface." As another example, Claim 14 recites "generating a seismic signal with a downhole steering tool while drilling a wellbore, the seismic signal operable to transmit through the Earth to the Earth's surface, the downhole steering tool comprising a drive shaft adapted to be coupled to a drill string and a housing rotatably supported outside the drive shaft." Thus, for reasons similar to those discussed above with regard to Claim 1, Applicants respectfully submit that the proposed *Paulsson-Innes-Sodich* combination does not disclose, teach, or suggest each and every element set forth in Applicants' independent Claims 10 and 14.

For at least these reasons, Applicants respectfully request reconsideration and allowance of Claims 10 and 14, together with Claims 11-13 and 15-18 that depend on Claims 10 and 14, respectively.

**B. The Proposed *Paulsson-Innes-Sodich* Combination is Improper**

Furthermore, Applicants respectfully submit that the Examiner has not provided the requisite teaching, suggestion, or motivation, either in the cited references or in the knowledge generally available to one of ordinary skill in the art at the time of Applicant's invention to modify or combine *Paulsson* with *Innes* and *Sodich* in the manner the Examiner proposes. Applicants' claims are allowable for at least this additional reason.

**1. The Legal Standard**

The question raised under 35 U.S.C. § 103 is whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art at the time of the invention. Accordingly, even if all elements of a claim are disclosed in various prior art references, which is certainly not the case here as discussed above, the claimed invention taken as a whole cannot be said to be obvious without some reason given in the prior art why one of ordinary skill at the time of the invention would have been prompted to modify the teachings of a reference or combine the teachings of multiple references to arrive at the claimed invention. It is clear based at least on the many

distinctions discussed above that the proposed *Paulsson-Innes-Sodich* combination does not, taken as a whole, suggest the claimed invention, taken as a whole. Applicants respectfully submit that the Examiner has merely pieced together disjointed portions of references, with the benefit of hindsight using Applicants' claims as a blueprint, in an attempt to reconstruct Applicants' claims.

The governing Federal Circuit case law makes this strict legal standard clear.<sup>1</sup> According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation to combine or modify prior art references is an essential component of an obviousness holding." *In re Sang-Su Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433 (Fed. Cir. 2002) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d 1456, 1459 (Fed. Cir. 2000)). "Evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved." *In re Dembiczak*, 175 F.3d 994, 999, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). However, the "range of sources available . . . does not diminish the requirement for actual evidence." *Id.* ***Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so."*** *In re Mills*, 916 F.2d at 682, 16 U.S.P.Q.2d at 1432 (emphasis added). *See also In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998) (***holding a prima facie case of obviousness not made where the combination of the references taught every element of the claimed invention but did not provide a motivation to combine***); *In Re Jones*, 958 F.2d 347, 351, 21 U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992) ("Conspicuously missing from this record is any evidence, other than the PTO's speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at" the claimed invention.). Even a determination that it would have been obvious to one of ordinary skill in the art at the time of the invention to try the proposed

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<sup>1</sup> Note M.P.E.P. 2145 X.C. ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

modification or combination is not sufficient to establish a *prima facie* case of obviousness. *See In re Fine*, 837 F.2d 1071, 1075, 5 U.S.P.Q.2d 1596, 1599 (Fed. Cir. 1988).

In addition, the M.P.E.P. and the Federal Circuit repeatedly warn against using an applicant's disclosure as a blueprint to reconstruct the claimed invention. For example, the M.P.E.P. states, “*The tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.*” M.P.E.P. § 2142 (emphasis added). The governing Federal Circuit cases are equally clear. “A critical step in analyzing the patentability of claims pursuant to [35 U.S.C. § 103] is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. . . . Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one ‘to fall victim to the insidious effect of a hindsight syndrome *wherein that which only the invention taught is used against its teacher.*’” *In re Kotzab*, 217 F.3d 1365, 1369, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (citations omitted; emphasis added). In *In re Kotzab*, the court noted that to prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. *See id.* *See also, e.g., Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 U.S.P.Q.2d 1788, 1792 (Fed. Cir. 1988). Similarly, in *In re Dembiczak*, the Federal Circuit reversed a finding of obviousness by the Board, *explaining that the required evidence of such a teaching, suggestion, or motivation is essential to avoid impermissible hindsight reconstruction of an applicant's invention:*

Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references*. Combining prior art references without evidence of such a suggestion, teaching, or motivation

simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999, 50 U.S.P.Q.2d at 1617 (emphasis added) (citations omitted; emphasis added).

## **2. The Analysis**

According to the Examiner, “it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of *Paulsson*, with the apparatus of *Innes* in order to lower operating costs.” (Office Action, page 3). With respect to independent Claim 14, the Examiner also states that such a combination would have been obvious “in order to take a seismic survey of a wellbore while simultaneously drilling.” (Office Action, page 4). Thus, it appears that the Examiner has merely proposed alleged advantages of combining *Paulsson* with *Innes* (advantages which Applicants do not admit could even be achieved by combining these references in the manner the Examiner proposes). The Examiner has not pointed to any portions of the cited references that would teach, suggest, or motivate one of ordinary skill in the art at the time of invention to incorporate the measurement device disclosed in *Innes* into the seismic vibrator source disclosed in *Paulsson*. In other words, the alleged advantage of the systems disclosed in *Innes* do not provide an explanation as to: (1) why it would have been obvious to one of ordinary skill in the art at the time of Applicants’ invention (*without using Applicants’ claims as a guide*) to modify the seismic vibrator source disclosed in *Paulsson* with the cited disclosure in *Innes*; (2) how one of ordinary skill in the art at the time of Applicants’ invention would have actually done so; and (3) how doing so would purportedly meet the limitations of Claim 1. Indeed, if it were sufficient for Examiners to merely point to a purported advantage of one reference and conclude that it would have been obvious to combine or modify that reference with other references simply based on that advantage (which, as should be evident from the case law discussed above, it certainly is not), then virtually any two or more references would be combinable just based on the fact the one reference states an advantage of its system. Of course, as the Federal Circuit has made clear and as discussed above, that is not the law.

Further, it certainly would not have been obvious to one of ordinary skill in the art at the time of invention *to even attempt* to, let alone *to actually*, modify or combine the seismic vibrator source disclosed in *Paulsson* with the measurement device disclosed in *Innes* in the manner proposed by the Examiner.<sup>2</sup> As described above, *Paulsson* relates to a seismic source that is “lowered into the well bore 500 with a cable 29 attached to a suitable anchoring means 28.” (Column 4, lines 11-13). The device of *Paulsson* includes clamping plates 66a-d that “are engaged to meet the well bore 500 . . . thereby forming a means for clamping source 60 securely to the well bore 500.” (Column 6, line 67 through Column 7, line 1). By contrast, *Innes* relates generally to a measure-while-drilling (MWD) tool that “fits within a drill collar 41 of a drill string.” (Column 3, lines 32-34). The MWD tool is used “for generating pressure pulses in a drilling fluid” within the drill string. (Column 2, lines 43-45). Thus, the systems of *Paulsson* and *Innes* use very different apparatuses to realize very different objectives. Applicants find no reason in either *Paulsson* or *Innes* or with the skill in the art as to why one of ordinary skill in the art would be motivated to combine these two seemingly unrelated references in the manner proposed by the Examiner for the reasons proposed by the Examiner. The identified differences in *Paulsson* and *Innes* provide further evidence that one of ordinary skill in the art at the time of Applicants’ invention would have considered the references as relating to different fields of invention and would not made the proposed combination. Applicants respectfully submit that the Examiner’s attempt to modify or combine *Paulsson* with *Innes* appears to constitute the type of impermissible hindsight reconstruction of Applicants’ claims, using Applicants’ claims as a blueprint, that is specifically prohibited by the M.P.E.P. and governing Federal Circuit cases.

Accordingly, since the prior art fails to provide the required teaching, suggestion, or motivation to combine *Paulsson* with *Innes* in the manner the Examiner proposes,

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<sup>2</sup> If “common knowledge” or “well known” art is relied upon by the Examiner to combine or modify the references, Applicant respectfully requests that the Examiner provide a reference pursuant to M.P.E.P. § 2144.03 to support such an argument. If the Examiner relies on personal knowledge to supply the required motivation or suggestion to combine or modify the references, Applicant respectfully requests that the Examiner provide an affidavit supporting such facts pursuant to M.P.E.P. § 2144.03.



Applicants respectfully submit that the Examiner's conclusions set forth in the Office Action do not meet the requirements set forth in the M.P.E.P. and the governing Federal Circuit case law for demonstrating a *prima facie* case of obviousness. Applicants respectfully submit that the rejection must therefore be withdrawn.

For at least these reasons, Applicants respectfully request reconsideration and allowance of independent Claims 1-18.

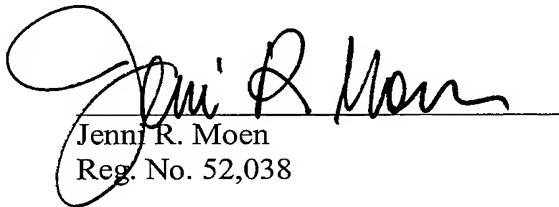
**CONCLUSION**

Applicants have made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicants respectfully request full allowance of all pending claims.

If the Examiner feels that a telephone conference would advance prosecution of this Application in any manner, the Examiner is invited to contact Jenni R. Moen, Attorney for Applicants, at the Examiner's convenience at (214) 953-6809.

Applicants believe that no fee is due, however, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,  
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